



This half term: Skills, Knowledge and Understanding to be developed:


- **Skills** (students **WILL BE ABLE** to by the end of the Learning Programme): list the waves of the electromagnetic spectrum in the correct order, compare waves in terms of frequency and wavelength, compare methods of communication in terms of cost, speed and security, define key terms, calculate time delays.
- **Knowledge** (students **WILL KNOW** by the end of the Learning Programme): the features of regions of the electromagnetic spectrum; which can be used for communication and which are ionising. They will know why ionising radiation can be harmful and how people can protect themselves against harm.
- **Understanding** (students **WILL DEMONSTRATE** their understanding): by answering a range of questions that focus around 'describe', 'explain', 'compare', 'analyse' and 'plan'.
- **Pupils will also utilise the Skills, Knowledge and Understanding developed in the topic areas covered during LP4 in completing past GCSE Physics exam papers as part of their revision.**

Key Terms / Words:

WAVELENGTH, FREQUENCY, WAVESPEED, TRANSVERSE, LONGITUDINAL, ELECTROMAGNETIC WAVES, RADIATION, IONISING, GEOSYNCHRONOUS, TOTAL INTERNAL REFLECTION, ENDOSCOPIC MEDICAL EXAMINATIONS, CT SCANS

<p>LP 4 – Week 1 & 2 Learning Outcomes:</p> <p>Unit 1.5: Features of Waves</p> <ol style="list-style-type: none"> Students will be able to describe the differences and similarities between the regions of the electromagnetic spectrum. Students will able to identify which regions of the electromagnetic spectrum can be used for communication. Students will be able to explain how geosynchronous and geostationary orbit a applies to satellite communication. APP1 – Students will be able to apply and demonstrate new knowledge and skills by completing APP1 based on work covered in lesson 1-3. Students will be able to explain what is meant by the terms “radiation” and “ionising radiation”, and identify which types of radiation are ionising. Students will be able to explain why ionising radiation can be harmful and know some of the precautions that can be taken to protect against the ionising effects. Students will be able to compare the advantages and disadvantages of optical fibres and geosynchronous / geostationary satellites for long distance communication. 	<p>Assessment →</p> <p>APP 1</p> <p>Mark</p>	<p>Success criteria:</p> <ol style="list-style-type: none"> Complete table with information about the e-m spectrum. List methods of communication using e-m waves. Define key terms. Draw/label diagrams showing satellite arrays. Carry out calculations of time delays. Define radiation and ionisation. List examples of ionising radiation. Students will be able to identify the advantages and disadvantages of different ways to communicate. 	<p>Homework LP 4</p> <p>Questions on the Electromagnetig Spectrum</p> <p>Mark:</p>
<p>LP 4 – Week 3 & 4 Learning Outcomes:</p> <ol style="list-style-type: none"> APP2 – Students will be able to apply and demonstrate new knowledge and skills by completing APP1 based on work covered in lesson 1-3. <p>Unit 1.7: Seismic Waves</p> <ol style="list-style-type: none"> Students will know the properties of seismic P waves, S waves and surface waves, in terms of their nature, speed and ability to penetrate different materials. Students will know that P waves are longitudinal and S waves are transverse. Students will be able to interpret simplified seismic records, to allow for the identification of the lag time between the arrival of the P and S waves to occur and to use the seismic records from several stations to locate the epicentre of an earthquake. 	<p>Assessment →</p> <p>APP 2</p> <p>Mark</p>	<p>Success criteria:</p> <ol style="list-style-type: none"> Answer past exam questions on calculating wave speed. List the difference between a P and S waves. Draw P and S waves and label the diagrams. Calculate the lag time between P and S waves by answering past exam paper questions. Label different parts of the Earth’s core. 	<p>Homework LP 4</p> <p>Revise for Summative Assessment by producing a revision resource.</p>



<p>12. Students will be able to describe and explain the path of P and S waves through the Earth.</p> <p>13. Students will be able to describe how existence of the S wave shadow zone as shown on seismic records has led geologists to a model of the Earth with a solid mantle and a liquid core.</p>		<p>Draw the path of p and s waves through the earth.</p> <p>6. Label shadow zones on the earth. Use diagrams to explain how they occur.</p>	
<p>LP 4 – Week 5 & ^ Learning Outcomes:</p> <p>Summative Assessment - Students will be able to apply and demonstrate new knowledge and skills by completing the summative assessment</p> <p>Unit 1.4: Domestic Electricity</p> <p>Students will be able to describe the difference between alternating current (a.c) and direct current (d.c)</p> <p>Students will be able to explain the functions of fuses, miniature circuit breakers (mcb) and residual current circuit breakers (rccb)</p> <p>Students will be able to use the correct equation to calculate appropriate fuse ratings.</p> <p>Students will be able to describe the ring main, explain the functions of the live, neutral and earth wires and list the benefits of this system.</p>	<p style="text-align: center;">  <div style="border: 2px solid blue; padding: 5px; width: fit-content; margin: 5px auto;">SA</div> <div style="border: 2px solid red; padding: 5px; width: fit-content; margin: 5px auto;">Mark</div> </p>	<p>Success criteria:</p> <ol style="list-style-type: none"> 1. Use an oscilloscope to identify the difference in a.c and d.c properties 2. Compare the pros and cons of using fuses, mcbs and rccbs. 3. Calculate the correct value for fuses in different electrical appliances 4. Label the three main wires in a plug and describe their functions 	<p style="text-align: center;">Homework LP 4</p>